

CLAIMS

1. A ball-and-roller bearing comprising an inner ring, an outer ring, and a plurality of rolling elements, wherein at least one member of the inner ring, the outer ring, and the rolling elements is formed of a steel alloyed with 0.6% to 1.3% by weight of C, 0.3% to 3.0% by weight of Si, 0.2% to 1.5% by weight of Mn, 0.03% by weight or less of P, 0.03% by weight or less of S, 0.3% to 5.0% by weight of Cr, 0.1% to 3.0% by weight of Ni, 0.050% by weight or less of Al, 0.003% by weight or less of Ti, 0.0015% by weight or less of O, and 0.015% by weight or less of N with the remainder being made up of Fe and inevitable impurities, and the member has a nitrogen-enriched layer formed thereon; and austenite crystals of the steel have a grain size number of greater than 10.

2. The ball-and-roller bearing of claim 1, wherein the steel further contains at least one of 0.05% or more to less than 0.25% by weight of Mo, and 0.05% to 1.0% by weight of V.

3. The ball-and-roller bearing of claim 1, wherein the nitrogen-enriched layer has a nitrogen content of 0.1% to 0.7%.

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4. The ball-and-roller bearing according to claim 3, wherein the member is a bearing ring and the nitrogen

content is measured at a depth of 50 μm of the surface layer of the machined ring surface.